

Appl. No. : 10/659,424
Filed : September 10, 2003

IN THE DRAWINGS:

Please amend Figures 21a, 21b, 21c (and 22) as shown in the attached marked up copies and replacement sheets.

As shown in these attached sheets, the reference numerals 250 and 250' have been changed to reference numerals 251 and 251', respectively.

An appendix including a marked up copy of Figures 21a, b, c, and 22 including marked up copies and replacement sheets is attached hereto.

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COMMENTS

Claims 1-30 remain pending in the present application, none of the claims having been amended, and Claims 4, 8-23, 27, and 28 having been withdrawn from consideration. The paragraphs of the specification set forth above include markings to show the changes made by way of the present amendment, deletions being in ~~strikeout~~ and additions being underlined.

In response to the Office Action mailed November 1, 2004, Applicants respectfully request the Examiner to reconsider the above-captioned application in view of the foregoing amendments and the following comments.

Amendments To Specification Address Noted Informalities

The foregoing amendments to the specification correct the informalities noted by the Examiner. In particular, Applicants have amended the paragraph beginning at line 22, page 22 to change the reference numeral "252" to "254," as requested by the Examiner. Additionally, Applicants have amended several additional paragraphs to change the reference numeral "250" to "251." These changes are made in conjunction with corrections made to the drawings that are also submitted herewith. The amendments do not add new matter and overcome the Examiner's objection. Entry of the amendments is respectfully requested.

Amendments To The Drawings Address Noted Informalities

The drawings stand objected to under 37 C.F.R. § 1.84(p)(4) for the duplicative use of the reference numeral "250." In response to this objection, Applicants have submitted herewith corrections to Figures 21(a), (b), (c), and 22 to change the reference numeral "250" to "251." Additionally, several paragraphs of the specification have been amended to agree with the present change to the drawings. These amendments to the drawings do not add new matter and overcome the Examiner's objection. Entry of these amendments is respectfully requested.

Matsuda et al. Does Not Anticipate Claims 29 And 30

Claims 29 and 30 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,478,638 issued to Matsuda et al. Applicants respectfully traverse the present rejection.

Briefly, the present application is directed to steering systems for watercraft, and more particularly, systems for providing steering assist for watercraft. As noted in the Summary of the Invention of the present application,

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An aspect of at least one of the inventions disclosed herein includes the realization that where thrust of a vehicle is changed based on whether or not the steering mechanism is positioned beyond a predetermined angle, it can be difficult for a rider of such a watercraft to anticipate when the additional thrust will be triggered. For example, as noted above, certain watercraft are provided with a controller that provides additional thrust when the handlebar of the watercraft is turned beyond a predetermined position and when the throttle is released. However, it can be difficult for a rider to remember precisely at what position of the handlebar will the additional thrust be triggered. Thus, one aspect of at least one of the inventions disclosed herein provides a tactile signal to a rider at the position at which additional thrust is triggered. Thus, a rider can more easily anticipate when additional thrust will be provided.

Present application, line 21, page 1-line 3, page 2.

Matsuda et al. teaches essentially the same kind of steering assist systems that present difficulties identified in the above-cited portion of the Summary of the Invention of the present application. In the embodiments of Matsuda et al. cited by the Examiner, there is no device disclosed that necessarily provides a tactile feedback to the operator at the point at which additional thrust is provided.

At page 5 of the outstanding Office Action, the Examiner identified components 32a and 32b as defining the "predetermined position." The description in Matsuda et al. makes clear that once the projection 30p hits either of the handle stoppers 32a, 32b, no further movement of the handlebar 10 is possible. Rather, "the handle stoppers 32a, 32b serve to restrict the largest steering angles of the handle 10." Matsuda et al., column 8, lines 9-10.

According to the interpretation provided at page 5 of the outstanding Office Action, there is no device that provides for an increase in output of the propulsion unit when the steering system is rotated beyond the predetermined positions (32a, 32b) of Matsuda et al. Rather, in Matsuda et al., once the projection 30p contacts the stoppers 32a, 32b, no further movement or force would change the output of the propulsion unit. Rather, an increase in propulsion unit output is generated by the movement of the projection 30p toward the stoppers 32a, or 32b, before the projection 30p makes contact with the stoppers 32a, 32b. This is the same problem associated with the prior art identified in the above noted section of the Summary of the Invention of the present application.

As noted above, an aspect of at least some of the inventions disclosed in the present application includes the realization that it can be difficult for a rider of a watercraft to

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anticipate when additional thrust will be triggered in off-power situations. Thus, in contrast to the system disclosed in Matsuda et al., Claim 29 recites, among other recitations, “a control system configured to increase an output of the propulsion unit when the steering system is rotated beyond a predetermined position, and means for providing a tactile signal to a rider of the watercraft corresponding to the predetermined position.”

Numerous embodiments of this type of system are disclosed in the present application. For example, as shown in the non-limiting embodiment of Figure 3 and the corresponding text, additional propulsion unit output is not generated until after the handlebars 84 contact the stops 86a, 86b. Thus, the initial contact with the stops 86a, 86b provides the tactile feedback to the operator that additional thrust will be triggered. Thereafter, as additional load is applied to the handlebars 84, and thus to the receiving elements 96a. The additional load is detected by the sensors 96b and is then used to provide additional thrust. Nothing in Matsuda et al. discloses a system that necessarily provides a tactile feedback to the operator to indicate to the operator when additional thrust is about to be provided. Rather, the system of Matsuda et al. suffers from the same difficulties identified in the Summary of the Invention of the present application.

To the extent that the Examiner is relying on functions or features that may be inherent in the Matsuda et al. patent, Applicants respectfully wish to point out that it has long been established that

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.”

M.P.E.P. § 2112 (emphasis in original).

Thus, Applicants submit that to the extent the Examiner is relying on reasoning that the Matsuda et al. system may or can be adjusted to operate in accordance with the watercraft recited in Claim 29, Applicants submit that such speculation is not sufficient to support a rejection based on inherency. Rather, Applicants submit that one of ordinary skill in the art would clearly understand that the system of Matsuda et al. can operate without providing a tactile feedback to the rider of the watercraft at the point at which additional thrust is

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provided. Thus, the system of Matsuda et al. does not necessarily provide such tactile feedback.

Applicants submit that Claim 29 clearly and non-obviously defines over the Matsuda et al. reference. Additionally, Applicants submit that Claim 28 also defines over the Matsuda et al. reference, not only because it depends from Claim 29, but also on its own merit.

The Proposed Combination Of Matsuda et al./Morrison Does Not Make Obvious Claims 1-3, 5, 7, 24-26, and 29-30

Claims 1-3, 5, 7, 24-26, and 29-30 stand rejected under 35 U.S.C. § 103(a) as being obvious over Matsuda et al. in view of U.S. Patent No. 4,423,630 issued to Morrison. Applicants respectfully traverse the present rejection.

As noted above, Matsuda et al. teaches essentially the same type of steering system identified as presenting difficulties in the Summary of the Invention of the present application. As admitted at page 6 of the outstanding Office Action, Matsuda et al. also fails to disclose a force detection assembly configured to sense a force applied to the steering control after the steering control is turned to either a first and second maximum turning positions and a control system configured to increase an output of the propulsion unit when the force further applied to the operator steering control exceeds a predetermined threshold.

Morrison et al. discloses a load cell 30 that can be made with conductive rubber. It was the Examiner's position that it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the stops 32a and 32b of Matsuda et al. with the load cells 30 of Morrison et al. Page 7 of the outstanding Office Action includes indications of possible motivations for combining the Matsuda et al. and Morrison references as (1) a simple and more precise system would result, and (2) to make sure the watercraft turns as quickly as the operator desires.

Applicants submit that neither of these two motivations appear in the prior art. Rather, Applicants submit that the only motivation for detecting the steering force applied after the steering assembly has been moved to predetermined maximum turning positions is set forth in the specification of the present application. For example, as noted in the second full paragraph of the Summary of the Invention of the present Application,

Another aspect of at least one of the inventions disclosed herein includes the realization that the force that a rider applies to a steering member can be used to control thrust, so as to make turning maneuvers easier to perform. For example, a watercraft can include a sensor to detect the force applied to the

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handlebar or steering wheel thereof, and a controller can adjust the thrust generated by the propulsion system in accordance with the detected force. When the additional thrust is triggered, the watercraft will turn more. Thus, the watercraft takes on a more intuitive operational characteristic, i.e., the more force applied by the rider, the more the watercraft will turn.

Thus, Applicants submit that the Examiner is improperly relying on hindsight reasoning to support the outstanding obviousness rejection. Neither the Matsuda et al. reference or the Morrison reference provide any motivation for detecting a force applied to the handlebars of a watercraft after the handlebars have been turned to maximum positions.

In contrast, Claim 1 recites, among other recitations, "the steering system comprising an operator steering control configured to rotate a steering shaft between a first maximum turning position and a second maximum turning position to permit an operator of the watercraft to control a position of the steering system, a force detection assembly configured to sense a force further applied to the operator steering control after the operator steering is turned to either of the first and second maximum turning positions, and a control system configured to increase an output of the propulsion unit when the force further applied to the operator steering control exceeds a predetermined threshold."

As noted above, Claim 29 recites, among other recitations, "a control system configured to increase an output of the propulsion unit when the steering system is rotated beyond a predetermined position, and means for providing a tactile signal to a rider of the watercraft corresponding to the predetermined position."

Thus, Applicants submit that Claims 1 and 29 clearly and non-obviously define over the Matsuda and Morrison references. Additionally, Applicants submit that Claims 2, 3, 5-7, 24-26, and 30 also define over the cited references, not only because they depend from one of Claims 1 or 29, but also on their own merit.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims and specification. Accordingly, early issuance of a Notice of Allowance is most earnestly solicited.

The undersigned has made a good faith effort to respond to all of the rejections in the case and to place the claims in condition for immediate allowance. Nevertheless, if any

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undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicants' attorney in order to resolve such issue promptly.

Respectfully submitted,

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Attorney Docket Number: FY.50656US1A
Applicant: Mizuno et al.
Title: WATERCRAFT STEERING ASSIST SYSTEM
Application Number: 10/659,424

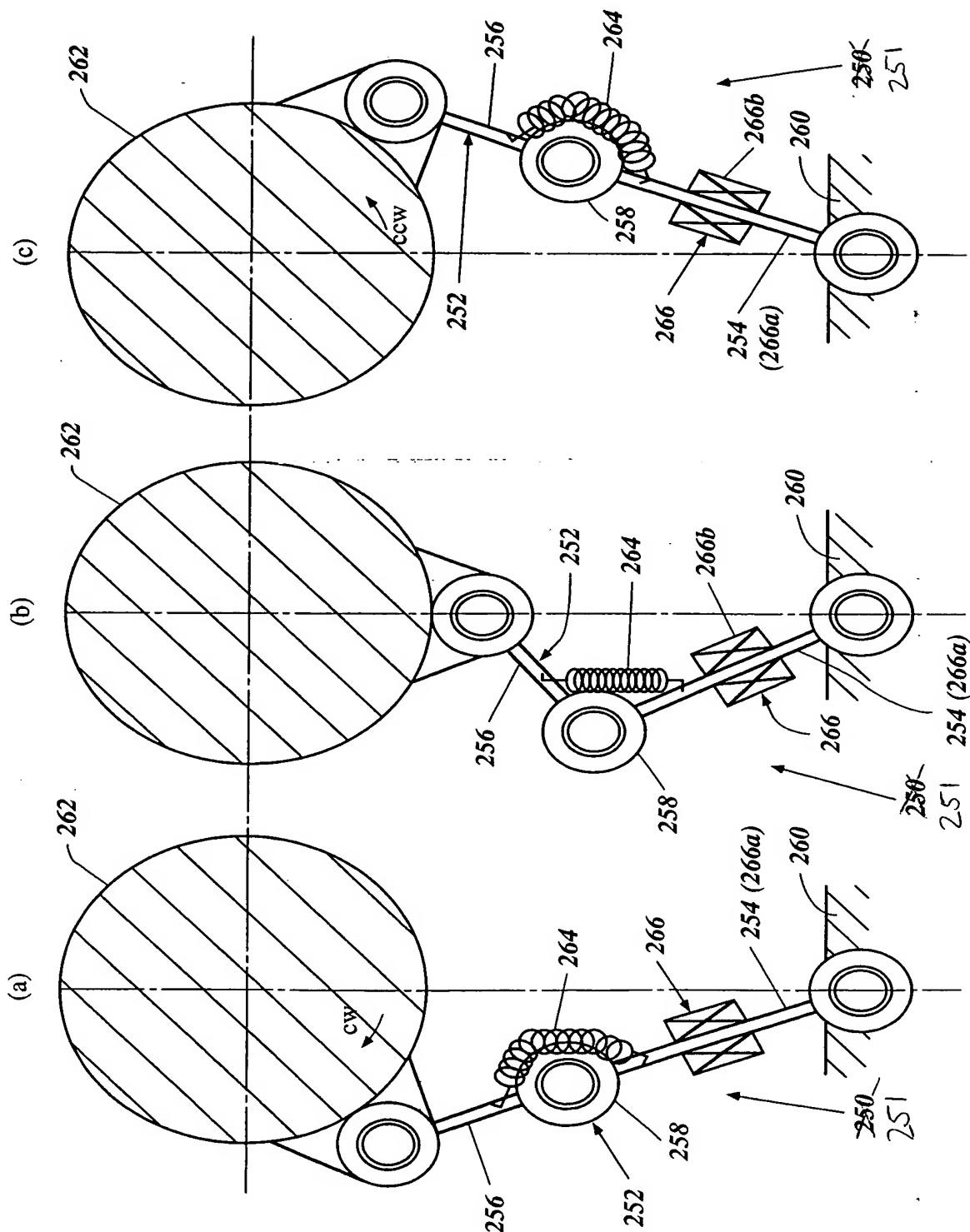


Figure 21

Attorney Docket Number: FY.50656US1A
Applicant: Mizuno et al.
Title: WATERCRAFT STEERING ASSIST SYSTEM
Application Number: 10/659,424

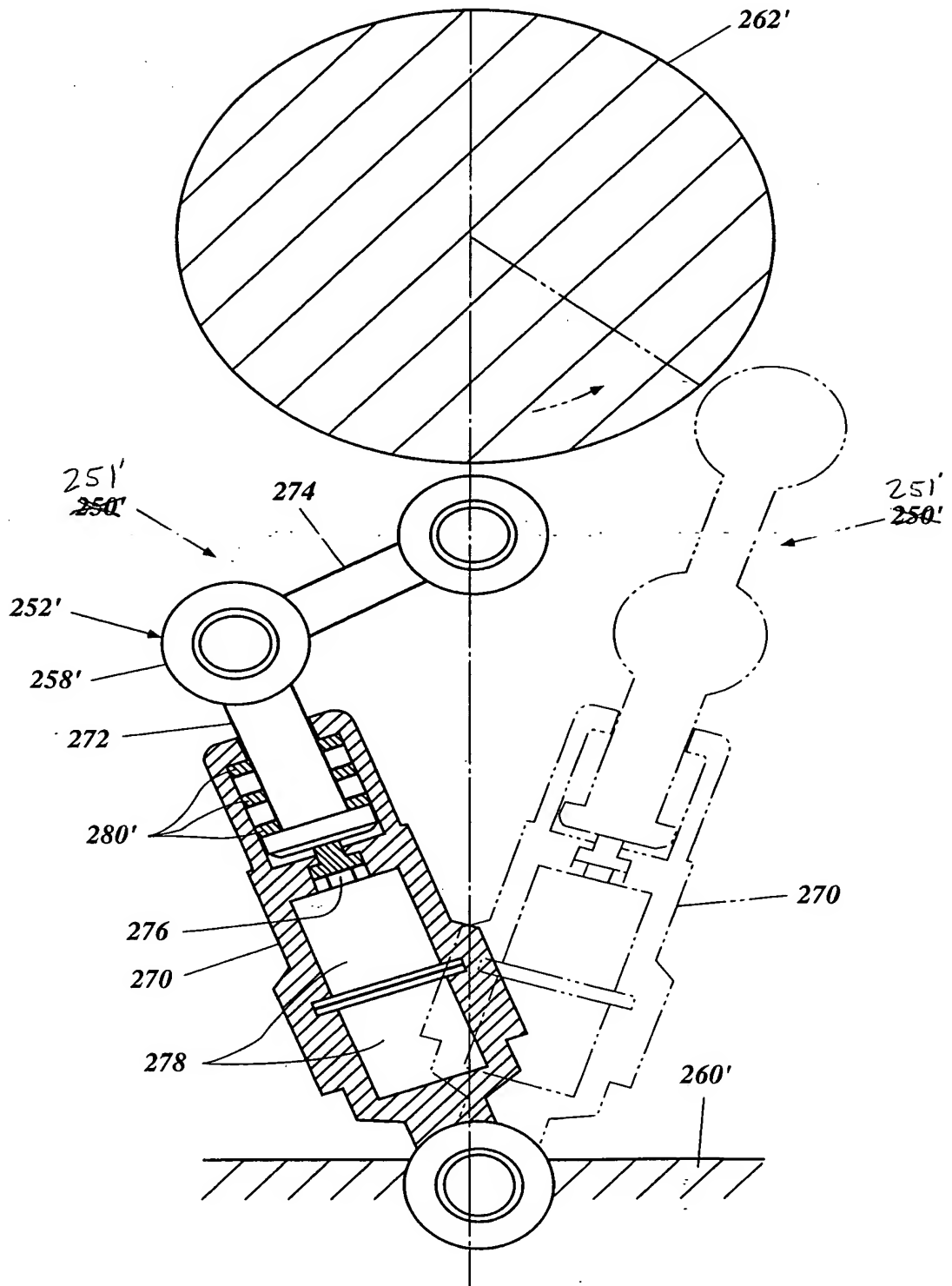


Figure 22